KNOWLEDGE

NO. 136 VOLUME 12 The colour magazine which grows into an encyclopaedia EVERY MONDAY 2/-

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U UNO

Covenants without the sword are but words.
Thomas Hobbes.

IN 1815 the Great Powers of Europe met in Vienna after Napoleon's downfall. This was more than just a meeting of victorious powers to impose conditions on a conquered adversary and carve up its territory; the Great Powers met with a feeling that they were jointly deciding the fate of Europe, and that their decisions could bring a permanent peace. At the Congress of Vienna the 'Quadruple Alliance' of Great Powers decided to meet again, and at the Congress of Aix-la-Chapelle in 1818 France was admitted to the European alliance.

But this ideal of a united Europe could not stand up to the strain of national rivalry. In the next hundred years all the Great Powers who had sat at the Vienna Congress were involved in major wars. By the middle of the century, France and Britain were at war with Russia, and by the end of it Prussia had fought both France and Austria. In 1914 the Prussian-dominated German Empire and Austria went to war with Britain, France, and Russia. The war was to be the most terrible that the human race had known.

After the war the great nations met again. They were determined to do away with war for ever, and bring 'Peace in Our Time'. In 1920 the League of Nations was formed as an organisation to settle international quarrels. But the United States did not become a member, and anyway the League had little power to enforce its recommendations – when Japan invaded Manchuria in 1931 the League was powerless, and when Hitler and Mussolini wished to carry out their aggressive policies they merely took their nations out of the League.

In 1939 war broke out again; although not so many troops were killed as in the First World War, the effects were more terrible. The civilian population found itself in the front line of the battle, and cities like Warsaw, Dresden, Coventry, and Hamburg were all but wiped out.

So after nearly 150 years of war the world had not solved the problem of how to live in peace by simply agreeing to do so. But by 1945 that problem had to be solved, for with the invention of nuclear weapons of mass destruction it was obvious that the next war might mean the wiping out of a large portion of the human race.

During the United Nations' operations in the Congo: Swedish soldiers on the alert for snipers and other attackers while patrolling the city of Elizabethville in Katanga

Previous page: Part of the headquarters of the United Nations in New York, showing the skyscraper which houses the Secretariat. In front of it are the flags of the member nations of the United Nations.

Foundation of the United Nations

In 1945, 50 nations met at San Francisco, and on 26th June signed the United Nations Charter – Poland, though a founder member, was not present at this meeting.

The United Nations Organisation (UNO) differed from the League of Nations in three important ways: this time all the victorious powers became members; the Charter provided for the use of force in certain circumstances; and, most important, decisions were voted on only a two-thirds majority, whereas the League had been paralysed by the unanimity rule which gave any one member the right of veto.

Since 1945 the United Nations has more than doubled its membership – it now has 110 members.

It has established itself as a forum for the discussion of world affairs; as a welfare organisation for the benefit of the whole world; and has acted as an international police force in such places as Korea and the Congo.

However, the United Nations has a long way to go before its usefulness can fully be realised. Many member countries are still not prepared to subordinate their national interests to those of the world as a whole. Some countries refuse to support the actions of the United Nations if they do not agree with them – the Soviet Union and France refused financial support over the Congo operation. Moreover, one of the world's major powers, Communist China, is still excluded from membership.

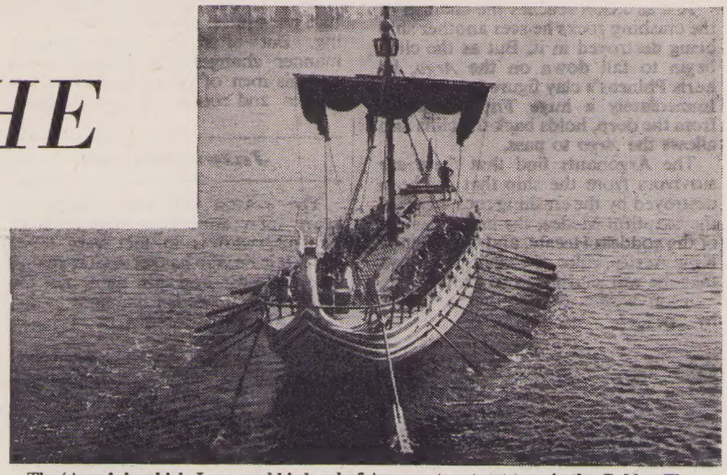
But the most important thing about the United Nations is that it exists. It is a seat of authority which, if recognised by all nations, could bring about lasting peace. Above all, it represents a new type of thinking: that nations of the world must solve their problems together; that disputes between nations, injustice, and suffering are the responsibility of the whole world.

Membership

Membership, according to the Charter, is 'open to all peace-loving states which accept the obligations contained in the Charter, and in the judgement of the

KNOWLEDGE NEWS
Week beginning 11th August 1963

JASON AND THE ARGONAUTS



The 'Argo', in which Jason and his band of Argonauts set out to gain the Golden Fleece.

THE story of Jason and the Golden Fleece has been told again and again since the time of the Ancient Greeks. The latest version is Columbia Pictures' new film 'Jason and the Argonauts' which has its first showing this week. Starring Todd Armstrong as Jason and Nancy Kovack as Medea, this film provides a novel interpretation of the ancient Greek myth. Here is the plot illustrated by pictures from the film. . . .

It is the eve of the battle. Pelias, whose troops are to fight those of King Aristo of Thessaly, consults the oracle. The oracle tells him that in the coming fight he will win the throne of Thessaly from the king, but will lose it again to one of the king's three children.

As the oracle predicts, he wins the battle. Afterwards, he kills King Aristo and his daughter.

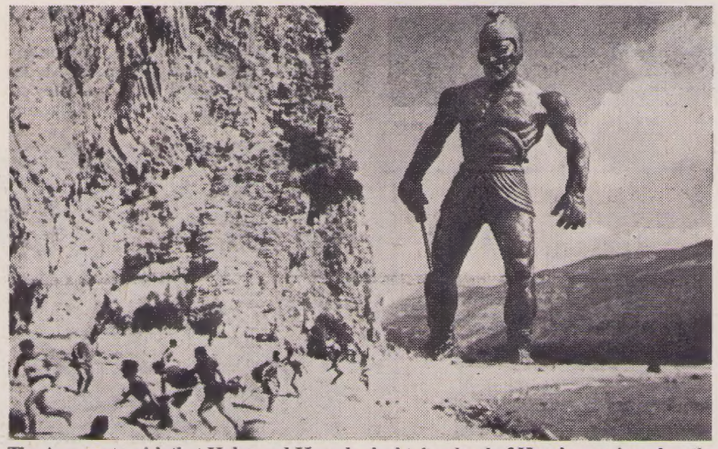
A warning from Hera

Hera, queen of the gods, then appears to Pelias in the form of a priestess, and tells him that Jason, the infant son of the murdered king, will succeed him. He is warned that to kill Jason would mean his own death. He is also warned that 'a one-sandalled man' will return to take the kingdom from him.

Twenty years pass and Jason, now a handsome young man, comes to Thessaly to reclaim his kingdom. In the woods he comes on Pelias and rescues him from a stream. In the course of this he loses a sandal. Pelias recognises the 'one-sandalled man', but Jason is not aware that he has saved his father's murderer.

The Golden Fleece

He tells Pelias that he plans to travel to the ends of the earth in search of the Golden Fleece; this is the fleece of a ram which has the power to bring peace and prosperity to the land which it is in. Jason hopes to bring it to Thessaly. This fleece hangs on a tree in the land of Colchis. Pelias naturally encourages Jason to go in search of it.



The Argonauts wish that Hylas and Hercules had taken heed of Hera's warning when the colossal bronze god suddenly appears.

Phineas being tormented by the female-formed Harpies.

For the voyage Jason commissions a ship to be built, called the *Argo*. He places an effigy of the goddess Hera on its stern. To select a crew for it, games are held and the strongest and bravest of the Greeks compete. Among the victorious Argonauts are Hercules, Polydeuces, Phalerus, Hylas, Euphemus, Castor, and Acastus. The latter Jason does not recognise to be the son of Pelias. Pelias and Acastus have plotted together to bring about the doom of Jason. So the *Argo* sets sail.

But the men grow mutinous, for the food and water run low. Jason calls on Hera, who directs them to the Isle of Bronze, the foundry of the gods, but warns them against taking anything. But Hylas and Hercules disobey, taking a trinket from the treasure chamber of the gods. They soon wish they had taken heed of Hera's warning, for the colossal bronze god who guards the chamber appears and sets upon them. The men beat a hasty retreat. Things look very grim for the Argonauts, and Jason calls upon Hera once more. She tells him how to get rid of the angry god. With a spear he loosens a screw plug in the god's heel, and as molten metal and steam pour out, the giant slowly disintegrates.

The Harpies

Hera gives her very last advice to Jason. She tells him to seek the guidance of Phineas, a blind old man. They find Phineas, who is being tormented daily by female-formed Harpies. He offers to help Jason on the condition that his men free him from the Harpies. Using nets, the Argonauts trap the Harpies as they swoop down on Phineas. The grateful old man directs Jason to the land of

[*continued on page 2*

JASON *continued*

Colchis. However, he warns him about the crashing rocks through which the *Argo* must sail. He also gives Jason a charm – a clay figure of a Triton.

Just as Jason reaches the channel of the crashing rocks he sees another ship being destroyed in it. But as the cliffs begin to fall down on the *Argo*, he hurls Phineas's clay figure into the sea. Immediately a huge Triton emerges from the deep, holds back the cliffs and allows the *Argo* to pass.

The Argonauts find that there are survivors from the ship that has been destroyed by the crashing rocks. One is the beautiful Medea, the high priestess of the goddess Hecate, and daughter of King Aeetes, ruler of Colchis. She says that she will lead Jason to Colchis.

Jason wishes to obtain the Fleece by peaceful means, but Acastus, Pelias's son, accuses him of cowardice. Acastus wants to take it by force. There is a furious battle between the two, and Acastus eventually jumps overboard and is presumed dead.

When they arrive in Colchis, Medea introduces Jason to her father. Aeetes is most affable and says that there will be a feast in Jason's honour that evening. But after the feast, Aeetes's manner changes. He accuses Jason and his men of being murderers and thieves, and condemns them to death.

Jason escapes

The reason for this change of heart soon appears in the form of Acastus, who is in fact very much alive. It is he who has set Aeetes against Jason. Jason and his men are imprisoned, but Medea manages to free them. She then declares her love for Jason, and tries to persuade him to give up the quest for the Golden Fleece. But Jason is having none of this. He is determined to have the Fleece at all costs, so Medea decides to help him. She leads him to the Glade of the Fleece which is guarded by the Hydra, a horrible seven-headed creature. Jason attacks the Hydra and kills it in a fierce battle. He then takes the Fleece. But Aeetes is on his trail. Jason and Medea and the rest of the Argonauts flee to the *Argo*.

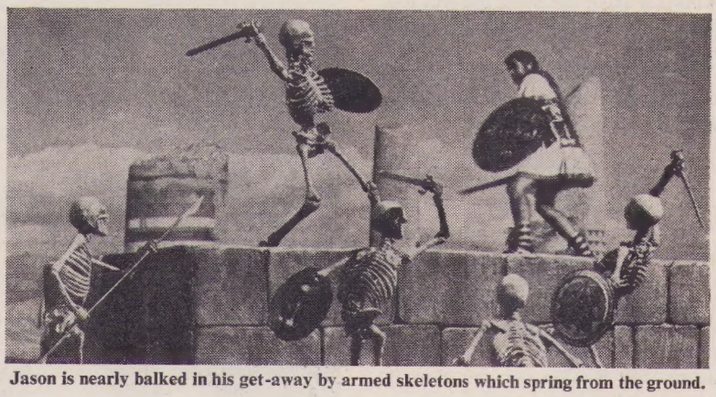
Jason with the beautiful Medea, whom he rescued. Jason is captivated by Medea, but he does not let her stand in his way in his quest for the Golden Fleece.

The Triton, summoned by Phineas's charm, holds back the cliffs to let the 'Argo' pass.

A fight with skeletons

In a final desperate effort to stop them Aeetes scatters the teeth of the Hydra in their path. Skeletons wielding swords spring up from where the teeth have fallen. After a desperate battle Jason manages to escape, but his two faithful Argonauts, Castor and Phalerus, are killed. Jason and Medea are reunited aboard the *Argo*. They set sail for Thessaly to claim the kingdom.

To reach the Golden Fleece Jason must first fight the Hydra, the terrible seven-headed monster.



Jason is nearly balked in his get-away by armed skeletons which spring from the ground.

Letter from the Editor-in-Chief

37 HERTFORD STREET, LONDON, W.1.

I QUITE often get letters from readers asking me why we have so much about ancient history in *Knowledge*. Why, they ask, do we have long articles about such obscure kings as Rameses II of Egypt and Assurbanipal of Assyria? What is the point of learning about such civilisations as those of the Babylonians, the Sumerians, and the Persians?

There are many reasons why the study of ancient history is worthwhile. First, if you want to learn about history, you might as well do the thing properly. The only way really to understand history is to go right to the beginning. We usually start studying history with the Greeks and Romans, but their civilisations came from the Middle East, and the civilisations of the Middle East came ultimately from China. When you realise that Roman and Greek civilisations did not spring up from nothing, it makes them all the more interesting.

Secondly, we can learn just as much about human nature from the actions of the ancient men as from those of modern men. Perhaps we learn even more, because in ancient times man was living in completely different circumstances. In some ways the men of the ancient world were the same as those of today – in others, startlingly different. How similar were the motives of Alexander the Great and Hitler? How different were their attitudes towards life?

Moreover, modern history does not contain all the most interesting characters or events. There were just as many fascinating conflicts and men in ancient times, only we do not often know a great deal about them.

To understand the present we must also understand the past. The great German historian Von Ranke once made the profound statement that 'everything is comprehended in its development' – in other words the present literally rises out of the past.

John Chancellor

PENGUIN CUNNING

The penguin may look comical, but it can be very cunning. In the wild, the greatest enemy of the penguin is the leopard-seal, so before a colony of penguins take to the water, they push one of their number in first, and wait. If no leopard-seal attacks, they know it is safe for them all to take the plunge.

ELECTRONIC TORTOISE

Schoolchildren in the Crimea, USSR, have built their own astronomical observatory, in which they have recorded 3,200 meteorites. They are also studying Mars and the Moon, and have set up their own Academy of Science. The academicians are all under 16 years of age, and have to have a good knowledge of mathematics and electrical techniques to qualify for election. At a recent meeting, a group of young technicians demonstrated a 'tortoise' they had constructed. The 'tortoise' feels its way with the help of a special device, and has a microphone for ears and a photo-relay system for eyes. The tortoise moves freely, bypassing any obstacles.

FACTORS

A word game

The following statements are either 'true' or 'false'. When one is 'true' score the *first* number, but if you think that it is 'false' score the *second* number. Change the numbers into letters (1=A; 2=B; and so on). Put these letters into the squares to make a five-letter word reading down the frame.

A Bombay duck has two legs (15) – (10)

There lived in the 18th century a famous gardener who was nicknamed Capability, his real name being Lancelot Brown (21) – (13)

A siesta is a mid-day rest (4) – (16)

The motto of the Prince of Wales is 'I Live' (12) – (7)

The aspen tree is noted for the trembling of its leaves (5) – (19)

ANSWER

Judge

(A Bombay duck is a fish and the Prince of Wales's motto is ICH DIEN or I SERVE)

LIVING FOSSILS

FOSSIL is a word used to describe the remains of animals and plants which lived a very long time ago. Most fossils consist of bones and shells, more or less altered in substance by mineralisation. Others are little more than impressions or casts in fine-grained sedimentary rocks; even the footprints of extinct animals are classed as fossils. There is one feature, however, which is common to all of them, without any exception: they can have no spark or trace of life in them. How then can we speak of 'living fossils'?

Survivors from the past

Living fossils are, of course, not fossils at all in the literal sense of the word. They are in fact living creatures all or nearly all of whose close relatives, from the point of view of classification, became extinct long ago and are known only from their fossil remains. These living fossils therefore represent the sort of creatures that inhabited the earth in past ages and are of great interest to us, not only as curiosities but as aids to the study of evolution. An actual fossil can give us only a limited amount of information about the appearance and anatomy of the creature it represents; all ideas about its habits and way of life must be simply deductions. A 'living fossil' can be studied by direct observation, and so far more can be learned about it.

In this article (which is confined to living fossils of the Animal Kingdom) we take a rather broader view of the term and include groups of animals which were once dominant all over the earth, but are now restricted to certain parts of it and are much less numerous than they used to be. The marsupial mammals form such a group, and we take the kangaroo as its representative.

Many of the animals classed as living fossils are rare and confined to certain limited regions, although this is not true of all of them. They are found most frequently in parts of the world which have been cut off from the main continents for an immensely long time; for example, in New Zealand and Australia.

AN IMPORTANT POINT

We must not think that the animals we regard as living fossils are identical with the extinct species which they represent. There are almost always some differences between them and the true fossil animals; this is to be expected, since the process of evolution has had plenty of time to bring about these changes.

Okapi (*Okapia johnstoni*)

In the geological period preceding the Ice Age (the Pliocene period) there was a great variety of mammals belonging to the family Giraffidae. The only survivors into modern times are two kinds of giraffe and the okapi. The giraffes are very peculiar and are specially adapted for reaching up to the branches of trees. The okapi, much more like the general type of giraffe-like animal that once existed, is a rare animal, and is only found in the forests of the Congo. It was unknown to science until 1901, when it was discovered by Sir Harry Johnston, after whom it is named.

Pronghorn (*Antilocapra americana*)

The pronghorn is the only present-day species of a family of ruminant mammals called the Antilocapridae. They existed before the Ice Age in some variety, but they were only found in North America, where the pronghorn still survives. Its numbers have been greatly reduced by hunting, and it is now strictly protected.

The pangolins are strange animals which live in Africa and Asia. Although they are rather like the ant-eaters of South America, they are not related to them, nor to any other known animals. Little is known of their ancestry, but they must obviously be survivors of some ancient stock.

Pangolin (*Manis pentadactyla*)

South American tapir (*Tapirus terrestris*)

Tapirs are very primitive members of the Order Perissodactyla, to which horses and rhinoceroses also belong. They were once world-wide in their distribution, but now survive in only two regions, South America and Malaya, very remote from each other. This sort of discontinuous (patchy) distribution is rather characteristic of animals of the type regarded as living fossils. It implies that they once existed in the intermediate regions, but have become extinct in them.

The kangaroo is a typical member of the Order of pouched mammals or marsupials. These were once the most numerous mammals on earth, but they were superseded by the placental mammals, and survived mainly in Australia, which was cut off from Asia by the sea before the placental mammals evolved. A few marsupials are found in South America. All the familiar mammals, like cats, rats, horses, and men, are placentals.

The tree-shrews were formerly believed to belong to the Order Insectivora, which includes the shrews, and were named accordingly. Recent research has shown that they are not closely related to the true shrews, but are exceedingly primitive members of the Order of primates, which also includes the apes, monkeys, and man. It follows from this that the tree-shrews are at a similar evolutionary stage to that of our own remote ancestors of 50 to 100 million years ago.

They are found in the forests of the far eastern tropics and resemble squirrels in habits and appearance, living among the trees and feeding on fruit and insects.

Tree-shrew (*Tupaia tana*)

Kangaroo (*Macropus rufus*)

Kiwi (*Apteryx australis*)

The kiwis of New Zealand are the only surviving members of the Order of birds which included the gigantic extinct moas. New Zealand was cut off by the sea from the continental land masses probably over 100 million years ago. Evolution of the mammals had not then proceeded far and, apart from bats, New Zealand has no native mammals at all. However, a variety of remarkable flightless birds developed there. Most of them were not able to withstand the impact of man's arrival, and the moas were exterminated by the Maori people before Europeans discovered the islands. Today kiwis are strictly protected.

The lungfishes are a good illustration of the principle of discontinuous distribution, for the three known kinds inhabit Africa, South America, and Australia respectively; the species shown here is the Australian one. They are fresh-water fishes and have air-bladders developed to function as a breathing organ. Lungfishes not unlike the living forms have been found as fossils from the Devonian period 350 million years ago.

The coelacanth fish *Latimeria* is perhaps the most famous living fossil because it was not discovered until 1938. Before that date fish of this type were supposed to have become extinct over 70 million years ago. The modern coelacanths live in deep water off the coast of Madagascar.

Nautilus

The nautilus is a cephalopod mollusc, allied to the octopus and cuttlefish. Unlike them, it has an external shell which is divided into chambers. Molluscs related to the nautilus are known to have existed for an immense period of time, ever since the Ordovician period over 400 million years ago. Today nautiluses are to be found only in the south-west Pacific.

Neopilina is a little limpet-like mollusc that was discovered in 1956 by the Danish research ship *Galathea*. It was dredged up from a depth of nearly 12,000 feet in the Pacific. It is by far the most primitive mollusc known, and fossils of similar shells date back 400 to 500 million years.

Neopilina

The tuatara is a lizard-like reptile found today only on some small islands off the coast of New Zealand. Its resemblance to a lizard is purely superficial, as it belongs to a distinct Order of reptiles, the Rhynchocephalia. These reptiles inhabited the earth in some variety during the Mesozoic era, about 200 million to 70 million years ago, roughly the period during which the land was dominated by the dinosaurs. With this one exception the rhynchocephalians became extinct at the same time as the dinosaurs. The very restricted distribution and ancient lineage of the tuatara make this reptile perhaps the most remarkable of all the living fossils alive today.

The tuatara lives in burrows among colonies of sea birds, petrels and shearwaters, which also burrow in the ground. It lives partly on insects and partly on the eggs and young of the birds. It is a slow-growing creature; its eggs take 15 months to hatch and it does not breed until it is 20 years old. The tuatara continues to grow for about 50 years and its normal span of life is over 100 years. It is now strictly protected by the New Zealand government.

Tuatara (*Sphenodon punctatum*)

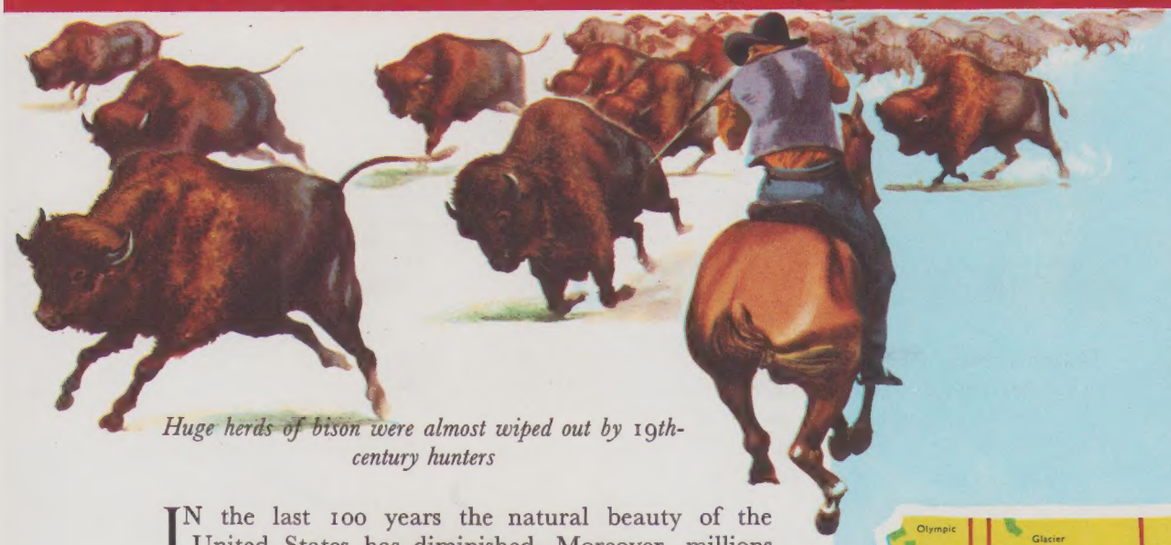
Lungfish (*Neoceratodus forsteri*)

Coelacanth (*Latimeria chalumnae*)

King crab
(*Limulus polyphemus*)

The king crabs or horseshoe crabs are not crabs at all; in fact they are not even crustaceans, but are more closely allied to scorpions and spiders. They are marine animals living in shallow coastal waters. Four species are known, one from the Atlantic coast of America, and the other three from south-east Asia. Fossil king crabs not very different from those living today are found in strata 300 to 400 million years old.

NATIONAL PARKS OF THE USA



Huge herds of bison were almost wiped out by 19th-century hunters

IN the last 100 years the natural beauty of the United States has diminished. Moreover, millions of animals have disappeared, and some species like the bald eagle, the emblem of the United States, are threatened with extinction. The guns of the hunters and the careless use of chemicals have been lethal destroyers. The National Parks of the United States are designed to preserve the country's natural heritage. Fauna and flora are specially preserved within these areas; beautiful and spectacular scenery is protected from the ravages of thoughtless exploitation.

The 30 National Parks of the United States range from Florida and Maine in the east to Alaska and Hawaii in the west. The oldest of these parks, Yellowstone National Park, in Wyoming, was established on 1st March 1872; the newest, in Hawaii, was created in 1961. The total area covered by the parks is vast – over 31,000 square miles – and they offer a tremendous variety of natural scenery. The splendid, arid beauty of the Grand Canyon is in striking contrast to the lush, tropical vegetation of the Everglades in Florida. The 150 miles of underground caves and galleries in Kentucky's Mammoth Cave National Park offer a totally different attraction to the towering snow-covered heights of Mount McKinley in Alaska, at 20,320 feet the highest point in North America.

Administration of the 30 parks is in the hands of the National Park Service, which in turn is responsible to the Federal Government's Department of the Interior. The Service builds roads, lays out trails, and sets up camping sites within the parks; it also arranges for accommodation, cooking, and washing facilities to be provided.

Because of its emphasis on conservation, the Park Service does not allow commercial concessions, and it does not allow speedboats or aircraft to disturb the peace. Shooting is strictly prohibited, fishing is only allowed in certain places, picking wild flowers or cutting down trees is discouraged; in fact, every possible precaution is taken to preserve the natural character of the parks.

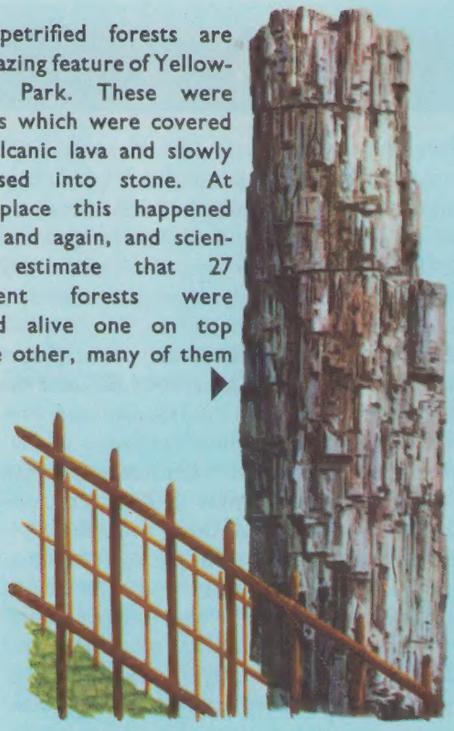
ANIMAL AND PLANT LIFE

Animals abound, and are zealously protected, in all the National Parks. They include black bears, brown bears, bison (which were once nearly extinct because of the exploits of men like Buffalo Bill), moose, elk, pronghorn antelope, several species of deer, bighorn sheep, coyotes, wolves, and many smaller mammals such as raccoons and chipmunks. The birds in these areas are also specially protected. Wild flowers of great beauty flourish in several of the parks, especially on Mount Rainier, Washington.

There are 30 National Parks in the United States, of which two are in the Hawaiian Islands (Haleakala and Hawaii National Parks), one is in the Virgin Islands (Virgin Islands National Park), and one is in Alaska (Mount McKinley). Most of the others are in the Middle West and West. The Park Service also administers special preserves, like National Monuments, National Historic Sites, National Trails, and roads like the superb Blue Ridge Parkway which joins the Shenandoah and Great Smokey Mountains National Parks.

'Old Faithful', Yellowstone Park's famous geyser, ejects about 13,000 gallons of water at regular hourly intervals. The nearly boiling water rises to about 130 feet. There are about 3,000 geysers and hot springs in the park.

The petrified forests are an amazing feature of Yellowstone Park. These were forests which were covered by volcanic lava and slowly fossilised into stone. At one place this happened again and again, and scientists estimate that 27 different forests were buried alive one on top of the other, many of them erect.



There are about 130,000 bears in the United States. This total includes black bears and the less common brown bears, or 'grizzlies', like the one shown above. Although there are large fines for feeding the bears, most tourists do so – and the animals wait along the roadsides for this very reason. Bears can be dangerous, which is why feeding them is prohibited.

The oldest and largest trees in the world are the sequoias which grow in 32 groves in Sequoia National Park in California. The one shown on the right, and named after General Sherman, measures 270 feet high; its diameter is 36 feet, and the circumference of its base is nearly 100 feet. Most of these trees are more than 3,500 years old. They owe their long life to their hard wood, and to the protection of their tannin-impregnated bark which is often 3 feet thick.

Part of the Grand Canyon in Arizona, probably the most famous of all the scenic wonders in the United States, has been made a National Park. The great cliffs and crevices are truly awe-inspiring. The colours – predominantly reds, yellows, and purples – are breathtaking. The canyon is over 210 miles long, up to one mile deep, and between 3½ and 18 miles wide. Through it run the broad waters of the mighty Colorado River.

Crater Lake in southern Oregon is what its name suggests – a lake in the crater of an extinct volcano. It is almost round, and the waters (which are of a vivid blue, resembling certain parts of the Mediterranean) are about six miles in diameter and nearly 2,000 feet deep. On calm days there is not a ripple on the water, and the lake appears to be made of azure glass. When first discovered in 1853 it was named Deep Blue Lake. A wide road circles the lake, joining several lookout points from which the visitors view the whole panorama at once.

ORDERS O

From left to right: *A Hospitaller, a Hospitaller in his armour, and a Templar*

TWICE every year, on New Year's Day and on the sovereign's official birthday, honours lists are published from Buckingham Palace, giving decorations to people who have helped their country or the sovereign. These honours lists apply to the British Commonwealth; foreign countries also reward their citizens in the same sort of way. The origin of many of these decorations is in the mediaeval orders of knighthood.

When we talk about orders of knighthood the word *order* has two meanings: first, it means a fraternity which has some special dedication or purpose; and secondly it refers to the insignia and badge of the fraternity (this meaning only came in much later when the fraternity aspect ceased to be important, and orders were bestowed for meritorious services).

The earliest orders were like religious orders, but they had a military purpose. Only those knights who had decided to devote their lives to serve God by fighting belonged to them. Out of the military and religious orders developed the great European orders, known as the Prime Orders of Christendom. These were fraternities of knights, but they had more the quality of an exclusive club which contained many of the nation's 'top men'. These Prime Orders proved extremely popular, and monarchs and governments founded lesser orders which were modelled on them. Some of the later orders had different classes. For instance, the Order of the British Empire has five classes: Knight Grand Cross; Knight Commander; Commander; Officer; and Member. Only the members of the first two classes are knights (or dames).

It must be stressed that only the minority of knights are members of an order of knighthood. Those who are not are known as Knights Bachelor, and represent the ancient knighthood which existed before any orders came into being.

Religious and military orders

The Hospitallers, or Knights of the Order of the Hospital of St John of Jerusalem, known today as the Knights of Malta, and Knights of St John of Jerusalem, were founded in the Holy Land at the beginning of the 12th century to take care of the poor and sick. In 1530 the Emperor Charles V granted them the Island of Malta, where they remained until the French Revolution. Today they are found all over Europe, and one of their offshoots is the St John's Ambulance Brigade.

The Templars were founded in about 1118 as an order dedicated to protecting the pilgrim routes in the Holy Land. They were given quarters near the temple of Solomon in Jerusalem, and hence their title, Poor Knights of Christ and of the Temple of Solomon. The great Cistercian monk, St Bernard of Clairvaux, took a keen interest in the order, and the original habit of the Templars was white like the Cistercians. They quickly developed into an élite military order; the Templars were the 'first to attack and last to retreat'. But they also caused considerable chaos among the ranks of the crusaders by their bitter feud with the Hospitallers. The order spread throughout Europe and became immensely powerful. At the beginning of the 14th century, Philip the Fair (see page 499) decided to put an end to the Templars, and in 1312 the order was dissolved and their property given to the Hospitallers.

The Teutonic Knights, the other great military order, was founded at the end of the 12th century. Like the Hospitallers, the original purpose of these knights was the care of the sick, and like them they quickly became a military order. In the 13th century they transferred their attentions to eastern Europe where they fought against the heathen Prussians. In 1309 the headquarters of the order was moved from Jerusalem to Marienburg, near the Vistula. The order became immensely rich and powerful. After subduing the Prussians the knights fought the Lithuanians, who were converted to Christianity by the end of the 14th century. After this the order began to decline, and suffered a crushing defeat in 1410 by the Poles and Lithuanians at Tannenberg.

Prime Orders of Christendom

The best known of these are the Garter (Britain); Elephant (Denmark); Golden Fleece (Habsburg Empire); Seraphim (Sweden); Annunziata (Italy); Black Eagle (Prussia); and St Andrew (Russia).

Left: *a knight of the Holy Ghost*; right: *a knight of the Golden Fleece*

F KNIGHTHOOD

The Most Noble Order of the Garter was probably founded in 1348. The reason for the foundation is not absolutely certain although there is a romantic story (see page 379) about a lady who dropped her garter when dancing with the king, Edward III, who returned it with the words (now the motto of the order) '*Honi soit qui mal y pense*' (Ashamed be he who thinks evil of it).

The order originally consisted of the sovereign and 25 knight companions. At first the knights were elected by votes of the existing knights. Now the knights are appointed by the sovereign. For a long time the formal ceremony of installation lapsed, but in 1948, at the 600th anniversary of the order's probable foundation, it was revived. Each knight has a stall in St George's Chapel at Windsor. This is the most distinguished British order of knighthood, and today includes such famous men as Sir Winston Churchill.

The Order of the Golden Fleece was perhaps the most prized of all European orders. It was founded in 1430 by Philip the Good, Duke of Burgundy. When the Burgundian lands fell by marriage to the Habsburgs, the Golden Fleece became the most important order of the Holy Roman Empire. When the Spanish and Austrian branches of the Habsburgs began to rule separately the order was divided into two. Protestants could be members of the Spanish but not the Austrian branch.

Later British orders

The Most Ancient and Most Noble Order of the Thistle, the Scottish order of knighthood, was founded in 1687 by James II. This was a revival of an earlier Scottish order. It lapsed the following year, and was revived by Queen Anne in 1703. Its motto is '*Nemo me impue lacessit*' (No one provokes me with impunity).

The Most Illustrious Order of St Patrick is the third national order of knighthood in the United Kingdom. It was instituted by George III in Ireland in 1783. Apart from the sovereign there are now only five knights, and none have been made since 1922, except members of the Royal Family. The motto is '*Quis separabit*', meaning 'Who shall separate?'.

The Most Honourable Order of the Bath was founded in 1725 as a military order. It was said to be a revival of an earlier body of knights who were knighted with the full ceremonial of bathing. At first the new Order of the Bath was mainly a military one, but in 1815 it was given civil and military divisions. Henry VII's Chapel in Westminster Abbey is its members' chapel, and their motto is '*Tria juncta in uno*' (Three joined in one).

Other British orders

The Most Distinguished Order of St Michael and St George was founded in 1818 to reward services by the inhabitants of Malta and the Ionian Islands. In the First World War it was used to reward members of the fighting services.

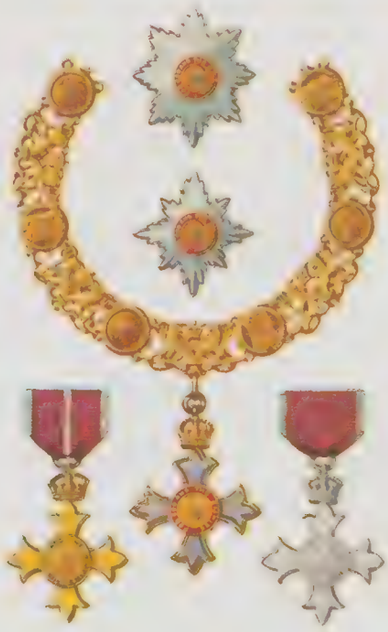
The Royal Victorian Order was founded in 1896 to be the sovereign's personal order. The sovereign need take no advice from the Government in conferring it.

The Most Excellent Order of the British Empire was founded in 1917 to reward wartime services. It now includes other services to the state.

OTHER FOREIGN ORDERS

Many of the most distinguished foreign orders are now bestowed not by the present government of their countries but by the deposed monarchs. Republican governments have introduced new orders. The most prized order in Russia used to be the Order of St Andrew, founded by Peter the Great. It is now the Order of the Red Flag, which, of course, is not an order of knighthood. The Soviet military Order of Glory has replaced the military Order of St George, founded by Catherine the Great, though it keeps the same colour ribbon. The United States has no orders of knighthood. The most important French order today is the Legion of Honour, founded by Napoleon in 1804. None of the old orders of the German Empire can officially be given. The highest is now the Order of the Federal Republic of Germany. The Order of Christ is the most important order conferred by the Pope. In Spain, the Order of the Red Arrows has replaced the Order of the Golden Fleece.

The insignia of the Most Noble Order of the Garter. The garter (above) is of velvet, and is worn below the left knee



The insignia of the Most Excellent Order of the British Empire. The collar (centre) is worn by Knights and Dames Grand Cross

The badge of the civil division of the Most Honourable Order of the Bath

The badge of the Royal Victorian Order

THE BURMESE

THE people of Victorian England regarded the incorporation of Burma into the British Empire with mixed feelings; in general they had a low opinion of the Burmese and their standards of decency. It was a series of 19th-century wars that brought Burma into the Empire, and indeed one of the causes of the Second Anglo-Burmese War was the complaints of British political agents against rude treatment by the Burmese. The agents were forced to live on an island where bodies were burned and criminals executed. When Burmese rulers granted an audience to representatives of the British Government, they were made to walk bareheaded and barefoot, passing first through doors which forced them to stoop, and walking across an uncarpeted area from which nails were purposely left protruding.

These and other tales made a deep impression on Victorian England – many people thought of the Burmese as possessing all the arrogance and savagery of the Orient with little of its civilisation. These first impressions were wrong. Accounts of unpleasant customs and inhuman practices were all that found their way back to Britain and they naturally conveyed a one-sided picture. It is true that the 19th-century King Thibaw sewed all his rivals for the throne up in scarlet sacks and had them beaten to death; on the other hand the Burmese as a whole were always an extremely tolerant people, friendly to foreigners, and – a very British virtue – kind to animals.

In the foreground a peasant uses the balance, an ancient method of irrigation, while on the left buffaloes are being used to work the land. In the background are typical pile like the girl, are wearing lungyi. The men also have bound strips of cloth around their heads

RELIGION AND CUSTOMS

Most of the Burmese are Buddhists. They believe in a chain of reincarnations – that every being is reborn in another life, in a higher or lower state depending on how he lived his first life. If a human being is bad, he may be reborn again as an insect. This explains the kindness of the Burmese to animals; they will even save the life of a poisonous snake and set it free where it can do no harm. A pious Burmese will eat meat or fish only if the animals have died naturally.

However, the strict Buddhist religion does not explain the streaks of gaiety and abandon typical of the Burmese. A good example of these qualities is the dramatic entertainment which takes place on many religious occasions. The main street of the town or village is lined with artificial peach and almond trees; the thousands of blossoms are imitated painstakingly with bits of paper. Everyone is dressed in their most colourful silks, which are always kept for special occasions. The women wear elaborate hair pieces, and the faces of the children, caked as a protective mask against the sun, are a sea of white. Everyone smokes enormous cheroots, swathed in white or scarlet paper.

At three o'clock in the afternoon the monks march through the main street and proceed to the pavilions where they receive presents and dine. When the monks have finished, their hosts (who have been fasting throughout the day) allow themselves the left-overs. Then come performances by slapstick comedians and fiery women dancers, moving with sharp, emphatic gestures. By half-past one the festivities have quietened down, and dramas are acted until dawn. With the Burmese, religious fervour and festive gaiety can go hand in hand.

WHAT THEY LOOK LIKE

The original inhabitants of Burma, the *indigenous* Burmese, make up about three-quarters of the population. They are Mongoloid in appearance, with skins varying from coffee to light brown in colour. The women wear double-breasted jackets and skirts called *lungyi*, and coil their hair elaborately. The men also wear lungyi, which they tie in a rather different way. They knot their long hair. The clothes are made of gaily coloured silk. But European clothes are replacing these traditional costumes in some parts of the country, and hair is being cut.

There is no caste system in Burma, nor any great division between rich and poor. The Burmese language is monosyllabic, and one word may be given several meanings by different tones and inflections. The primary education given by the monks together with the law making the children go to school have caused illiteracy to be rare.

THE LAND THEY LIVE IN

Burma is a long, narrow country lying along the western side of the Bay of Bengal. It has an area of 261,717 square miles – slightly larger than France – yet its population of about 20 million is only twice that of London.

The heart of the country is the basin of the great Irrawaddy river and its tributary, the Chindwin. The southern part of this plain is the great rice-growing district of Burma, while farther north the plain is dry, and paddy (rough rice), sesame, millet, and cotton are grown. This dry belt is the original home of the Burmese. Around the plain are high mountain ranges, and some great plateaux. Most of the mountains are covered with dense forest, but unfortunately hill tribes caused much damage to them by cutting down trees, cultivating the land for a few years, and moving on to a fresh part of the forest. The land they left was either eroded or covered by bamboo or jungle-grass. In the mountains live many animals, including elephants, wild buffalo, tigers, barking deer, and many lizards and snakes, including the deadly king cobra.

Burma became an independent republic in January 1948. It has a republican government, with a president who is elected by the parliament for a five-year term of office. For nearly a hundred years before this it had belonged to Britain, who built a number of roads, railways, and irrigation works. Schools and colleges specialising in such subjects as forestry and engineering were founded. The capital of the country is Rangoon, which lies on the Rangoon river about 20 miles from the sea.

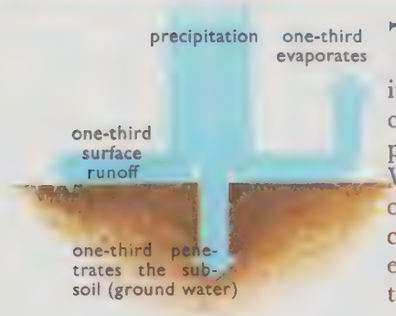
dwellings, and some magnificent pagodas. The two men in the foreground,

PAGODAS AND POTTERY

One of the most characteristic features of Burma is the many pagodas. The hilltops of the countryside are studded with them. They are usually small and simple, made of plastered brick and whitewashed. Many of them are in a state of decay, since it is thought religious merit goes only to the builder of a new pagoda, and not to someone who repairs one. A few pagodas are more elaborate, with gold cupolas and decorated inside with statues and carving. The most famous is the Golden Pagoda in Rangoon, which stands as high as St Paul's Cathedral.

Pottery is the only art that has developed fully in Burma; painting and sculpture are primitive by western standards, and their simple primitive music has been developed only as an accompaniment to drama.

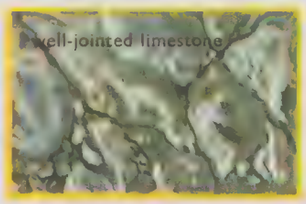
UNDERGROUND WATER



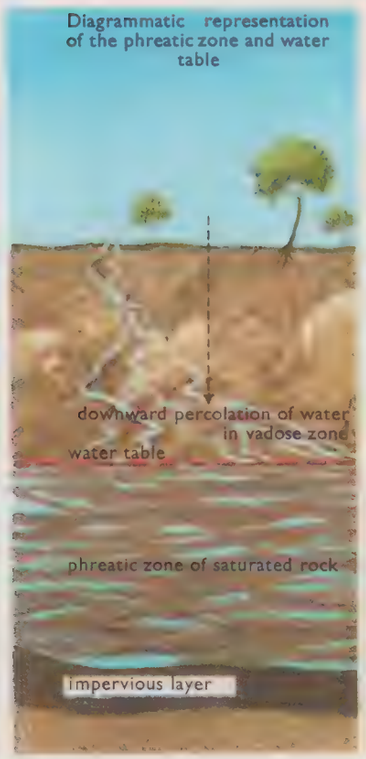
THE water lying below the surface of the land is out of sight and relatively inaccessible, and has consequently always invoked a sense of mystery. Where does it come from? What causes it to ooze almost imperceptibly from the ground in some places and gush from the rocks in large quantities in others? Why is it sometimes cold and pure, in other places boiling hot or bubbling with various gases? Why does some ground water contain rich mineral solutions which form deposits when exposed to the air? These are some of the questions that confront the hydrologists looking below the land surface.

The hydrological cycle

Most *ground* water is derived from precipitation. We have already seen (page 1503) that a number of different things can happen to moisture which falls on the land as rain, hail, or snow. About one-third of it returns quickly to the atmosphere by evaporation from the ground surface (or through plants by the process known as transpiration). About one-third flows directly into streams and rivers and thence to the sea. The remaining third soaks into the soil and percolates into the underlying rocks. This is known as *sub-surface* or *ground water*.



Rocks through which water can percolate freely are said to be *pervious*. They may be *porous* and *permeable*, like sand and sandstone; or they may be practically *non-porous* and *impermeable*, like granite, but nevertheless pervious because of the presence of interconnected open joints and fissures through which the water can readily flow. Impervious rocks are those through which water cannot easily soak; they may be of two kinds: porous, like clay, or relatively non-porous, like many massive igneous rocks.


Diagrammatic representation of the phreatic zone and water table
downward percolation of water in vadose zone
water table
phreatic zone of saturated rock
impervious layer

The formation of the water table

When rainwater sinks into a pervious bed, such as sandstone, it soaks down until it reaches an underlying impervious bed, such as clay or shale. Here the downward movement ceases and the pervious bed becomes *saturated*. As more water accumulates the zone of saturation becomes thicker. This saturated part is known as the *phreatic zone*. Its upper limit is known as the *water table*. A pervious rock containing water is called an *aquifer*. The level of the water table at any place will fluctuate seasonally or from year to year according to the amount of rain which has fallen.

There is usually some time-lag between the greatest rainfall and the highest level of the water table because the downward percolation of *vadose water* may be very slow. The level of the water table is usually extremely variable and depends upon geological structure. In an area of simple structure the water table more or less follows the topography but is generally situated at a greater depth on hilltops than on the valley sides or bottom.

The undulating nature of the phreatic zone means that the ground water will flow downhill until it can escape to the surface. This movement is extremely difficult to measure because the water is generally passing through very small fissures.

The interior of a limestone cavern showing the

If the geological structure is simple, the water table will probably reach the surface of the ground in the valley bottoms and the ground water will drain into the stream or river situated there. If, however, the geological structure is more complicated and the hill is composed of alternate bands of pervious and impervious rocks, the ground water may reach the valley sides. Where the water emerges from the rock a spring or series of springs will occur. Some of the geological conditions which may give rise to spring formation have been illustrated on page 1596.

Artesian basins

Where pervious rocks are tilted or folded into a syncline or basin, the ground water will tend to move downwards in the direction of inclination of the rocks. If the aquifer is overlain by an impervious cap of rock the water will be unable to escape naturally through a spring. Instead it will accumulate under the pressure created by the *hydrostatic head* or difference in level between the catchment area and the lower part of the inclined aquifer. Here the water will be stored at high pressure. If a well or boring is now sunk through the impervious layers, water will be forced up to the surface in a gushing spout. This kind of structure is usually known as an artesian basin and the wells are called artesian wells. One of the best-known examples of this sort of structure is the London Basin where the aquifer is the chalk, sandwiched between impervious beds of clay.

secondary deposition of limestone in the form of stalagmites, stalactites and curtains

Caverns, caves, and underground streams

Rather special conditions occur in areas of limestone where the ground water causes chemical solution of the rock. Rain water is slightly acid in reaction and therefore slowly dissolves limestone. Hence the paths taken by the ground water through joints and other fissures in the rock gradually become opened by the chemical action of the water. As these openings become larger the water begins to flow more vigorously and mechanical erosion further enlarges them. The combination of processes eventually gives rise to series of cave passages which interconnect to provide complex underground river systems. The underground streams reach the ground surface at sites which are favourable for the development of springs. A good example of underground drainage in thick limestone is shown on page 1597. As the drainage system increases in size and complexity, earlier stream passages become dry and the streams cut downward to form great caverns of considerable depth. In addition to the actual erosion of the limestone by running water there will also be secondary deposition of limestone within the caves. Because caves are below the ground surface there is little evaporation, and the walls are usually wet. This water is heavily charged with calcium carbonate. The long-continued drip of water gives rise to a variety of pillars, curtains and other more complex formations. The best known of these are *stalactites*, which hang from the cave roof, and *stalagmites*, which grow upwards as tapering columns from the floor.

The structural conditions which make artesian wells possible

Some notable caves

In some areas of very thick limestone the cavern systems may be very large. For example, in Kentucky, in the United States, there are many hundreds of caves (see page 2011). In Europe the most important areas of cave development are found in the Pyrenees (see page 1416) where the river Garonne passes right under the main mountain range as an underground river. The Karst plateau of northern Yugoslavia (see page 775) is another important limestone area and, indeed, gives its name to the typical landscape of such areas.

The most important caves in Britain are found in the Peak District of Derbyshire, West Yorkshire, parts of South Wales, and the Mendip Hills. One of the most impressive cave chambers in Britain is Gaping Ghyll, on the south-east slopes of Ingleborough. The upper shaft, which is open to the sky, falls for 365 feet into a chamber 480 feet long and 110 feet high. Beyond this chamber is a complex system of cave passages totalling about $3\frac{1}{2}$ miles.

The typical surface terrain of a limestone area is a dry, pock-marked, and rather rugged upland. The development of extensive sub-surface drainage means that most rainfall drains below ground very quickly. This is both because the rain soaks rapidly into the subsoil and open joints of the rock and because the pock-marked depressions which cover the surface soon become filled with water. These are called 'shake holes' or 'sink holes' in Britain, but geologists use the Serbo-Croat word 'doline' to describe them. Sometimes the roof of a cave collapses, leaving a rugged, steep-sided depression or ravine exposed to the sky.

A cavern has formed close to the ground surface and is bridged by
The roof has collapsed, leaving a rugged, steep-sided ravine

The formation of a **polje** *or depression caused by collapse of cavern roof*

OTHER KINDS OF UNDERGROUND WATER

The type of ground water which accumulates by the percolation of rainfall through pervious rocks is known as *meteoric*. This is to be distinguished from two other kinds of ground water. The first is fossil water which was trapped in sediments at the time of their deposition, and which may still be present in sedimentary rocks. This is known as *connate* water. There is another kind of ground water which is liberated as steam and hot mineral-rich water at times of igneous activity. This is believed to reach the surface for the first time and is known as *juvenile* water.

Usually hot springs and geysers (page 1438) found in Iceland, North America and New Zealand, comprise a mixture of meteoric water which has penetrated to a considerable depth, combined with small quantities of juvenile water. Such springs and spouts are richly charged with minerals and their vicinity is coated with deposits of *travertine*, *geyserite*, and other unusual minerals. Indeed the majority of mineral veins, such as those containing lead and zinc, were originally deposited far below the ground surface by the movement of juvenile waters liberated during a period of igneous activity.

PETER THE GREAT

Peter pointing to the spot where he will build Russia's new capital, St Petersburg

IT is strange that many people consider the reign of Peter the Great to be a turning point in Russian history – a period in which western influence and ideas first infiltrated into this backward, barbaric, eastern nation. For Peter was the greatest barbarian who has ever sat on a royal throne in modern times. He stood for all that was bad in old Muscovy: he was coarse and ill-mannered; a heavy drinker; and he was revoltingly cruel.

Peter's bloodthirsty character was no doubt conditioned by the bloody times in which he lived. When Tsar Fedor II died childless in 1682 he left as possible successors a brother, Ivan, and a half-brother, Peter. Ivan was a half-mad, half-blind imbecile of 15, and Peter was a well-developed, healthy child of 10. Power was seized by the dead Tsar's 25-year-old sister Sophie, an ugly, bulky, masculine woman. With the aid of Muscovy's undisciplined guards, the *streltsy*, she invaded the Kremlin Palace and, before the eyes of Peter and his mother Nathalie Naryshkin, massacred their relatives and supporters. She proclaimed Ivan *the first Tsar* and Peter *the second Tsar*, but proceeded to govern herself with the help of the handsome Prince Vasili Golitsin with whom she was infatuated.

Sophie ruled for seven years before her unpopularity finally caused her downfall. During that time Peter grew from childhood to manhood, not in the turbulent world of the Kremlin but in the nearby village of Preobrazhenskoe. Here he amused himself by organising his friends into mock armies, in which he himself always served in the ranks, and staging mock battles. Their manœuvres sometimes resulted in loss of life. He also developed a craze for playing the drum, which drove his more musical companions to distraction. He continued to 'practise' the drum with characteristic energy for the rest of his life.

It was at this time that he developed a passion for ships, and was taught the art of shipbuilding by Dutch sailors who lived near Lake Pereisaslavl. He was fascinated by everything he learned. We often forget that when we talk of 'mysterious, far-away lands in the East', the people of the East think of 'mysterious, far-away lands to the West'. Few people in Russia knew anything about other countries, and Peter's thirst for information was, perhaps, the least Russian thing about him. His tutor was a Dutchman, Franz Timmermann, who taught him arithmetic, geometry, artillery, and fortification. There is something rather like Anna and the King of Siam about Peter's trusting faith in Timmermann; but this faith was misplaced, for Timmermann was incapable of getting the right answer to even the simplest of the sums which he set his royal master.

Peter married Eudoxie Lopukhin, the daughter of a palace official, when he was only 16, but he was not a good husband. In a couple of months he abandoned her and eventually she was forced to become a nun and banished to a far-off convent. Peter's character was more suited to revels with his drunken male friends than to domestic harmony.

These friends were an oddly assorted group. They included the Scotsman, Patrick Gordon, who taught Peter one of his favourite hobbies – making fireworks. Then there was Francis Lefort, a Swiss who had a fabulous capacity for alcohol. Both these men were made admirals though they had hardly been to sea. Some of his companions, like Fedor Romodanovsky and Prince Michael Golitsin, were noblemen, but the most remarkable was an illiterate commoner, Alexander Menshikov. He had a glittering career and held high positions in the army and navy. In 1706 he was made a Prince of the Holy Empire.

Together, this group became known as the Most Drunken *Sobor* of Fools and Jesters. The *sobor* was a kind of 'order'. The main function of its members was drinking, and they played an obscene and often blasphemous part in public ceremonies. Severe

penalties were handed out to those who refused to take part in their performances. When the aged Matthew Golovin refused to take the part of a demon at a marriage celebration he was stripped naked on the ice of the River Neva and covered with soot. He died shortly afterwards of pneumonia.

Foreign travel

Sophie was overthrown in 1689 by Peter's supporters, but it was not until after the death of his mother in 1694 and Ivan in 1696 that Peter really took his duties seriously. In 1695 and 1696 he took part in attacks on the Turkish fort of Azov, and when it surrendered Russia had, for the first time, an outlet on the Black Sea. The following year he decided to inspect the western world for himself and went on an extensive tour of Germany, Holland, England, and Austria. He studied navigation, shipbuilding, artillery, fortification, and even dentistry; and he visited theatres, museums, factories, and hospitals. He is said to have built boats, beds, and baths with his own hands, and cooked his own meals.

Such industry may seem praiseworthy, but Peter did not make a good impression. Those who entertained him found him terribly untidy, bad-tempered, and inconsiderate. He had an aversion to eating with a knife and fork, and when he left the beautiful home of the diarist Admiral John Evelyn, at Deptford, which had been placed at his disposal, the whole place was a broken-down shambles.

Nevertheless Peter's own impressions of the western world were highly favourable, and the day after he got back to Moscow he took a pair of shears and cut off the long sleeves and venerable beards of the palace dignitaries. In the traditional Russian religion, beards are an integral part of man's 'likeness to God', and Peter's action showed how much he was prepared to break with Russian tradition.

But a more gruesome task awaited him than cutting beards. In his absence the *streltsy* had revolted against his rule, and his vengeance was swift and brutal. Hundreds of suspects were lashed with the knout and tortured over slow fires before their executions. Peter himself acted as chief executioner and his *sobor* assisted him. Menshikov and Romodanovsky were extremely skilful, but Golitsin displayed an incompetence which must have doubled the agony of those whose decapitations were allotted to him.

War

Peter's preoccupation with military matters, his ruthless energy, and his insatiable ambition, dictated one course for Russia – war. He befriended Augustus, the unscrupulous king of Poland. Poland dreamed of wresting Livonia from the large Swedish Empire, and in 1700 war broke out between the alliance of Russia, Poland, and Denmark (who was a traditional enemy of Sweden) and the youthful Charles XII of Sweden. Charles XII was one of the dazzling figures of the century. Born in 1682, he was a fearless and amazingly successful soldier. The Russian army was overwhelmingly defeated by him at the battle of Narva in 1700, and Peter fled from the battlefield crying like a child. But he renewed his determination, and prepared his army and navy for further battle. In 1709 the great battle of Poltava was fought in which Peter completely routed the dashing Charles.

This was by no means the end of the Great Northern War, and indeed a fresh alliance against Sweden included Russia, Prussia, Saxony, Hanover, and Denmark. But the decision of Poltava was never reversed. The rise of Sweden under Charles was followed by an equally sudden collapse. The Peace of Nystadt in 1721 gave Russia the territories of Livonia, Estonia, Ingria, and part of Karelia on the Baltic Sea. She had definitely arrived as a European power, and Peter took the title of 'Emperor'.

Peter's last years were years of deepening tragedy. With almost unbelievable callousness he himself supervised the execution of his son and heir Alexis in 1718 for a treasonable plot which was never justly proved. All the time Peter was suffering more and more from an incurable disease. When he died on 28th January 1725 many people, including his wife, breathed a sigh of relief, for her downfall had seemed certain at the time.

The 'Royal Carpenter' receiving courtly visitors while at work in Deptford harbour

It is difficult to estimate the effect of Peter's 'westernisation'. He overhauled administration, built Russia's first theatres, schools, museums, and scientific academies. He himself edited Russia's first newspaper, and he played a prominent part in the subordination of the Church to the State. It was his decision to adopt the Julian calendar in place of the archaic Muscovy calendar which had lasted until 1699. The old calendar had reckoned the date from the creation of the world and had begun the year on 1st September.

Peter's love of the sea caused him to build Russia a new capital on the Baltic – St Petersburg, today called Leningrad. This was his 'window on the west' and symbolised his plans for Russia's destiny as a Great European Power.

Nevertheless, in practice these reforms were less impressive than they sound, and Russia remained backward long after Peter's death.

Peter cuts off the long sleeves of the boyars, *the leading palace officials. Afterwards he removed their long beards*

DYES AND PAINTS

FROM earliest times, man has needed colour; he has decorated his home, his clothes, and even himself. Prehistoric man used charcoal and plant juice to paint the caves in which he lived. In classical times brightly-coloured clothes were a mark of rank, for dyeing was a difficult and expensive process; for example, 12,000 shells of the Mediterranean shell-fish *Murex brandaris* were needed for one gram of the colour known as Tyrian (or royal) purple, making this dye too costly for anyone but the emperor himself. Roman legionaries returned from Britain with tales of wild natives covered with designs in blue, black, and green, colours extracted from woad, a plant sometimes used even today in blue dyes.

The preparation and production of artificial colourings is among the most important and complicated chemical industries of today, for they are used in everything around us: clothes, cars, plastics, houses, furniture, even food. A complete list of them would run into thousands, but they can be divided easily into two main categories: dyes and paints.

Dyes are chemical substances used to colour materials such as paper, cotton, wool, or leather, by penetrating the fibres and becoming part of the material itself.

Fibres are soaked in a dye solution

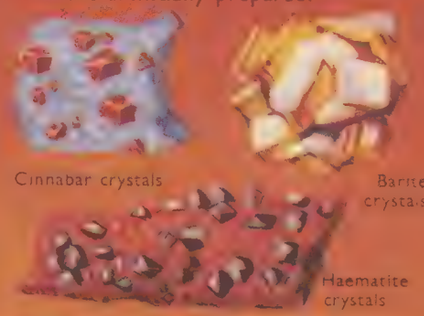
Paints are chemical substances that are applied to colour articles made of wood, stone, metal, and so on. They penetrate the surface very slightly and cling to it, forming a hard, protective film.

coloured paint (left)
clear varnish (right)

DYES

Many of the dyes used until the present day were known to the Egyptians in 3000 B C. However, natural dyes are not only costly to make but also difficult to apply. Some of them cannot be absorbed by the material to be dyed unless a substance called a *mordant* (such as tannin or chemical salts) is added. With the growth of the textile industry, and the production of cheap materials and man-made fibres, cheaper and stronger dyes were needed that could be applied quickly and yet withstand the new finishing processes that make materials crease-resistant or shower-proof. Some natural dyes, extracted from minerals and plants, are still used, but these have been largely replaced by chemically-resistant dyes that are artificially prepared.

MINERAL DYES. These are used mainly in the production of paint, but are also used for colouring china and glass, and dyeing leather. The most common pigments are chalk, clay, kaolin, zinc oxide, lead carbonate (white lead), zinc sulphide (for shades of yellow), barium sulphate (permanent white), mercuric sulphide (cinnabar or natural vermilion), red lead, graphite, and ferric oxide (haematite, for reds).



PAINTS

Paints make up the second group of chemical products that brighten our lives. Nearly everything around us is covered with a coat of paint or a layer of varnish. This layer adds colour as well as giving a degree of protection that varies according to the type of coating used. Paints are made up of many different chemical substances, mixed together so that they act on each other to produce different colours and effects. Paint manufacture involves very complicated chemical processes, and a great many chemists and physicists are employed in the industry. The different products in this group come under two headings: paint (which is opaque) and varnish (which is clear).

A coat of varnish is transparent

A coat of paint is opaque

COLORATION

Paint is applied as a liquid, usually with a brush or roller. It dries to form an opaque layer that completely covers the pattern or colour beneath. The basic ingredients of paint are a solid pigment that gives colour, and a liquid medium (solvent plus thinner) that dissolves the pigment and makes the paint easy to apply.

Pigments are chemical compounds, added to the medium in paste or fine powder form. Some occur naturally (see Mineral and Vegetable Dyes, above), the most important being the ochres (iron oxides). Chromates of lead and zinc not only give bright colours but also serve to protect metals from corrosion.

Paint is used for many different purposes and the medium varies accordingly. It can be varnish, oil, resin, or water, or a mixture of these. Enamel or gloss paint for

Rubia tinctorum

Saffron crocus

Insect

Coal tar

Benzene

Toluene

Phenol

VEGETABLE DYES are used for dyeing materials and yarn. Madder, the dried powdered root of *Rubia tinctorum*, gives shades of red. Indigo, from *Indigofera tinctoria*, gives blue. Both these originated in India. Dyes are extracted from the bark, leaves, flowers, and seeds of many other plants, such as woad (*Isatis tinctoria*), saffron (*Crocus sativus*), lichens, logwood, redwood, fustic, apple trees, blackcurrants, dandelions, spinach, and many more.

ANIMAL DYES include purple from the Murex shell, and cochineal, extracted from dried shells of the female cactus insect of Mexico, *Coccus cacti*.

SYNTHETIC DYES. In 1856 the English chemist William Perkin accidentally produced the first synthetic dye, a mauve, while trying to make artificial quinine. During the 1860's many more were produced, especially in Germany. Now there are well over a thousand different synthetic dyes, obtained from products distilled from coal tar: benzene, toluene, naphthalene, phenol, and others. After a series of complex chemical processes the dye is produced in paste or crystalline form.

The method of dyeing has remained almost unchanged for nearly 5,000 years. The pigments are crushed to a fine powder, which is made into a paste. Water is added to make a solution, and the material to be dyed is soaked in this. The fibres swell as they absorb water, allowing the dye to penetrate deep into the pores where the colour remains. A great deal of water is needed to swell the fibres enough for this to happen – 10 gallons to one pound of material.

VARNISH

Varnish is a sticky liquid, brown or yellowish in colour, that is applied in a thin layer with a brush. When dry, it forms a hard, almost colourless, transparent film. Varnish is used mainly on wooden surfaces, to protect them and give a glossy appearance, while allowing the natural grain of the wood to show through. Varnish is made of three principal ingredients: the *base*, which sticks to the surface being varnished and produces the hard film; the *solvent*, in which the base is dissolved; and the *thinner*, which makes the varnish spread easily.

The base is made of oil and resin. Linseed oil, obtained from the flax seed, is still the most widely used; other important oils come from the soya-bean, sunflower, and poppy. Oil from pilchards and sperm whales is sometimes added, but the use of fish oils is limited because their strong smell is so difficult to remove. Resin gives the hard, glossy finish. Natural resins include copal, which comes from trees, and shellac, which comes from the lac insect. Synthetic resins are produced from a mixture of natural resins and alcohol or coal tar products; these are the base of most quick-drying varnishes, while synthetic resins made from cellulose are used in lacquer. Solvents are added to the base to dissolve the oils and resins, and bind them together. The solvent evaporates during drying, leaving a hard film on the surface, and a strong varnish smell in the air. However, too much solvent would weaken the base, so thinners (that thin the varnish without dissolving the base) are used as well. Turpentine was formerly the only solvent used, but it has now been almost completely replaced by substitutes such as white spirit, which is distilled from petroleum. Solvent and thinners are made from coal tar products, and methylated spirits are used in spirit varnishes. Ethyl, acetone, glycol esters, and ethers are among the solvents and thinners added to cellulose-based lacquers.

A roller is often used to apply emulsion paint to walls

household use is pigment plus varnish; cellulose paint is pigment plus cellulose varnish. In flat or emulsion paints, the medium is water with a little oil. Artists' colours are pigment plus oil; water colours are made of pigment and water, with a little glue added to bind them together. To make tempera, fresh egg-yolks are added to the powdered pigment and mixed with an emulsion of water and oil. Varnish based on refined oil is the medium used with pigment in printer's ink.

oil paint

enamel

printer's ink

THE PAINT INDUSTRY

Paint production forms part of the vast chemical industry in Britain today. The leading manufacturers of paint for domestic use include Imperial Chemical Industries (I C I), the largest chemical firm in Britain, which produces 'Dulux' paints; Pinchin, Johnson & Co, members of the Courtauld group (that is also famous as a producer of man-made fibres), market 'Gaymel' paints; 'Robbialac' and 'Magicote' paints are made by Berger, Jenson and Nicholson Ltd; and Wallpaper Manufacturers Ltd produce 'Walpamur' paints. The industry's laboratories are continually engaged in research to produce paints which are not only cheaper and easier to use, with brighter and more permanent colours, but which also give greater protection.

INDONESIA – history

FEW islands in the world have been as hotly struggled over by the great European powers as have the Spice Islands. Westerners had been fascinated for years by fabulous tales of their untold riches, strange spices, and fertile lands. These tales had been reaching Europe since the 13th century. It was not until the 16th century that westerners decided actually to visit the islands. Four centuries of commercial rivalry and bloodshed followed, as the European powers struggled first to wrest the islands from their inhabitants and then from each other. At last, in 1949, Indonesia was declared an independent republic whose territory comprised the islands of the Malay Archipelago: a group of islands lying between Asia and Australia, and dividing the Indian from the Pacific Ocean.

Although once an exploited race, today the growing self-confidence of the Indonesians indicates that whatever part they play in the future, it will be a more positive and influential role.

The first settlements

The islands of Indonesia (see page 264) form the largest archipelago in the world. They include the islands of Sumatra, Java, Bali, Borneo, Celebes, the Moluccas, about 3,000 small islands, and, since May 1963, western New Guinea. There is no real unity among the people; 25 main languages and about 250 dialects are spoken, although 'Bahasa Indonesia', adapted from the dialect of eastern Sumatra, is the official language. Today there are three main races living on the islands: Chinese; Europeans, whose numbers have declined since 1949; and the descendants of the first inhabitants.

No one really knows where the original inhabitants came from, or when exactly they arrived. They were probably of three main types: Negritos from western Malaysia, now almost entirely confined to the Philippine Islands; Papuans from eastern Malaysia; and a yellow-skinned Mongolian race from Indo-China.

Trade provided the impetus for foreign immigration. The first Indian merchants arrived on the islands about 2000 years ago. They brought their Buddhist and Hindu religions with them and made many converts. Indeed the Hindu empire, Majapahit, centred on eastern Java, flourished for two centuries. But in the 13th century Muslim traders arrived. These founded a Muslim state which eventually gained control of Java. The Hindu empire collapsed.

The islands of the Indonesian archipelago which have been the scene of nationalist upheavals in the 20th century

In Sumatra, too, the religion of Islam gained hold. Marco Polo, imprisoned there in 1292, noted that whole villages had been converted to Islam. From Sumatra the Islam religion spread along the trade routes through most of the islands, although some remote inland areas remained pagan until the 19th century. In the 16th century, however, the Portuguese arrived and quickly reduced the power of the Muslim kingdom which had risen out of the ruins of Majapahit.

Ruthless exploitation

The long years of European exploitation began in 1511 when the Portuguese Alfonso d'Albuquerque established a trading base on Malacca. Spanish, British, and Dutch followed closely on the heels of the Portuguese. Bitter quarrels broke out before the Dutch East-India Company, founded in 1602, outstripped its rivals and established a virtual trade monopoly. The Dutch traders were completely unscrupulous; they used bribery to influence the local chieftains in a way which upset the social organisation of the islands, and almost succeeded in eliminating the Indonesians from trade. But by 1800, when the jurisdiction of the Company was transferred to the Netherlands government itself, corruption had completely undermined a once highly profitable organisation.

The fight for independence

The Dutch East Indies, as part of Napoleon's empire, were occupied by Britain from 1811 to 1816. Sir Stamford Raffles, the lieutenant-governor, attempted to introduce a more liberal trading system, but with the end of the Napoleonic Wars the islands were returned to the Dutch, and within a few years Raffles' work was undone. The Dutch government administered the colonies throughout the rest of the 19th century as inefficiently as the old East India Company had done. Discontent grew. Demands for self-government became insistent, and in 1926 the Indonesian Communist Party brought the country to a standstill with a general strike. Matters were taken out of Dutch hands when the Japanese occupied the islands after entering the Second World War. Although their rule brought hideous suffering, the Japanese were compelled, in order to run the country effectively, to provide military training for the natives and to appoint them to new positions of responsibility. With this short apprenticeship in self-government the Indonesians declared their country a republic before the end of the war. Dutch efforts to re-establish their rule after the war failed utterly. They imprisoned the nationalist leader, Achmed Sukarno, but could not stand in the way of popular opinion, and on 27th December 1949 all the islands except Dutch New Guinea became independent. Achmed Sukarno became President. In May 1963 western New Guinea was added to Indonesia and was renamed West Irian.

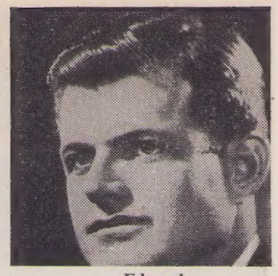
Despite her critical geographical position as a buffer state between China and the West, Indonesia insists that she is neutral, and receives financial aid from both America and China – however, she has shown an inclination to side with the Communist bloc.

Joseph senior

Jacqueline

John

Robert

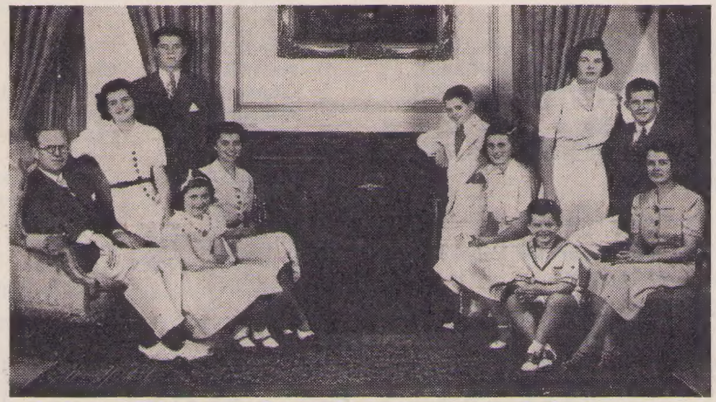


Edward

AMERICA'S FIRST FAMILY

THE year was 1847. Thousands were dying in Ireland in one of the greatest famines that Europe has ever known, and every day crowded boats left Irish shores full of Irishmen setting out to seek a new life in 'the land across the sea' – the United States of America.

These immigrants did not all find America the land of promise that they had expected. In fact, most of them discovered that only menial jobs were open to them, and that the Protestants looked down upon them as second-class citizens. This was especially so in Boston, where the Kennedy and the Fitzgerald families settled. But two sons of these immigrant families, Patrick J. Kennedy and John F. Fitzgerald, were to prosper. Patrick Kennedy served in both houses of the Massachusetts State Legislature; John Fitzgerald was elected to the United States Congress for three consecutive terms, and was twice Mayor of Boston.



A picture of the Kennedy family taken in 1937; from left to right: Joseph senior; Patricia (13), now Mrs Peter Lawford; John (20), now President of the United States; Jean (9), now Mrs Stephen Smith; Eunice (16), who later married Sargent Shriver, head of the United States Peace Corps; Robert (12), now Attorney-General; Kathleen (17), later Marchioness of Hartington, and killed in a plane accident; Edward (6), now Junior Senator for Massachusetts; Rosemary (19), unmarried; Joseph junior (22), later killed in World War II; Mrs Rose Kennedy, née Fitzgerald.

Joseph senior

Patrick Kennedy's son, Joseph P. Kennedy, became even more powerful than his father. Banking, investments and other business activities made him a multi-millionaire. Among his positions was that of United States ambassador to Great Britain between 1937 and 1940. He married Rose Fitzgerald, the daughter of fellow Bostonian, John F. Fitzgerald. Their family is now easily the most powerful in America. The second of their nine children, John Fitzgerald Kennedy, is today the President of the United States, the first Roman Catholic to be so; his younger brothers, Robert and Edward, are respectively Attorney-General of the United States, and Junior Senator for Massachusetts.

So powerful and popular is America's first family that some are asking: 'Is the United States due for a Kennedy dynasty? Will brother succeed brother as President of the most powerful state on earth?' Time alone can answer this. But what is the secret of the Kennedys' power?

First, of course, it is based on ability. President Kennedy has shown himself intelligent, vigorous, and capable. But he has also behind him an extremely efficient political machine constantly rallying support for himself and the Democratic Party. This machine is backed by the Kennedy millions – the Kennedys are one of the richest families in America, and the President does not draw his salary, but gives it all to charity. Another potent factor in rallying public support is the 'glamorous' image President Kennedy presents to the public. He seems to be everything that this materialistic age admires: immensely rich, handsome, and intelligent; America's most successful citizen. He has a beautiful wife and a distinguished war record. He is a keen sportsman, and is just as impressive in an open-necked shirt as in a suit.

The President has surrounded himself with as many first-class brains as he can lay his hands on. These have helped formulate numerous progressive policies: in agriculture, race relations, and social welfare; and so President Kennedy has become a symbol of progressive liberalism.

Kennedy also sees that his policies and 'image' are put over to the public as attractively as possible. He understands the principles of what is known as public relations – seeing that he is presented to the public in a good light. He was once a journalist and thus knows how to keep the press friendly. Moreover, he is good on television – indeed his television appearances during his presidential campaign did a lot to get him elected.

He has cut a dashing figure in foreign affairs. Although at the beginning of his term of office he was humiliated by the failure of the American-inspired invasion of Cuba, last year he gained something of a moral victory when he forced the Russians to withdraw their rocket bases from that island.

He has given the world the ideal of a united West, and has shown a willingness to come to terms with the Soviet Union. He has said that the United States will not negotiate 'out of fear' nor 'fear to negotiate'. He has also shown, however, by his firm stand over Berlin, that his attitude towards the Soviet Union can be one of uncompromising toughness.

Space-age statesman

Kennedy has had his failures too. There has been considerable opposition in the United States to the carrying out of some of his policies. Yet despite these failures he is the sort of statesman that many people want.

Today there is a growing feeling that, as qualities for a statesman, the vigour, alertness, and ability of young men are as important as the wisdom of the old.

THEIR RISE TO POWER

John

John Kennedy was born in 1917, and educated at Harvard University, where he studied political science. In 1939 he visited Europe, and when he returned he wrote a thesis analysing the reasons behind Britain's failure to rearm in the 1930s. This was later published in book form under the title *Why England Slept*. It was widely praised. During World War II John Kennedy joined the Navy. In August 1943 the motor-torpedo boat which he commanded was cut in two by a Japanese destroyer. Although his back was painfully injured, Kennedy rescued several of his crew who had been thrown into the water. He towed one badly wounded man away from the sinking torpedo boat to an island. After a harassing week in enemy territory, he brought his crew to safety. He was awarded the Navy and Marine Corps Medal for this exploit. After the war he became a journalist, but as he said: 'I felt it was too passive. Instead of doing things, you were writing about people who do things.' At the age of 29 he was elected to the Senate. In 1953 he married the beautiful Jacqueline Bouvier. In 1956 he suffered his only political defeat when he narrowly missed Democratic nomination for Vice-President of the United States. In 1960, however, he won his party's nomination for President, to which office he was elected after a close fight with the Republican, Richard Nixon.

Edward

Edward Kennedy was born on February 2nd 1932. Like his brothers, he went to Harvard. He made law his career. Six feet two inches tall, he is a keen games player, and has a pilot's licence. He helped his brother in his presidential campaign, and in 1961 he was elected to the United States Senate as Junior Senator for Massachusetts.

Robert

Thirty-seven-year-old Robert Kennedy was born in Boston, Massachusetts. During World War II he served in the Navy. He then went to Harvard, and played football for the University. He graduated from Harvard in 1948, and from the Virginia Law School in 1951. He began his legal career with the Criminal Division of the Justice Department. When his brother John ran for the Senate in 1952, Robert went to Massachusetts to manage his successful campaign. He was also his brother's right-hand man in the last presidential election. After he was elected, John made him Attorney-General.

At New Ross, County Wexford, Ireland, the little cottage where the President's great-grandfather once lived can still be seen.

Announcement for readers of Yellow Knowledge

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Remember – copies are better in a binder.

This issue contains the title page and table of contents for Volume 8. Next week's issue will contain the index for Volume 7.

ARMAND DENIS MAY BE VISITING YOUR TOWN

Don't miss these exciting lectures about wild life, and primitive peoples. Tickets can be obtained from your usual suppliers.

Town	Hall	Date	Time
CARDIFF	Sophia Gardens Pavilion	Thursday, 22nd August	7.30 pm
BIRMINGHAM	Town Hall	Friday, 30th August	7.30 pm
WOLVERHAMPTON	Wulfrun Hall	Saturday, 31st August	3 & 6 pm
LONDON	Festival Hall	Sunday, 1st September	3 & 7.30 pm
NEWCASTLE	City Hall	Monday, 2nd September	7.30 pm
GLASGOW	Concert Hall	Tuesday, 3rd September	7.30 pm
ABERDEEN	Music Hall	Wednesday, 4th September	7.30 pm
LIVERPOOL	Philharmonic Hall	Thursday, 5th September	7.30 pm
BRIGHTON	Dome Theatre	Saturday, 7th September	7.30 pm
NORWICH	Theatre Royal	Monday, 9th September	7.30 pm
BRISTOL	Colston Hall	Tuesday, 10th September	7.30 pm
MANCHESTER	Belle Vue	Wednesday, 11th September	7.30 pm
SOUTHAMPTON	Guild Hall	Thursday, 12th September	7 30 pm
DUBLIN	Full details from Dublin Zoo;	Friday, 13th September	

Can you answer these?

1. Who was a huntress and goddess of the moon in ancient mythology?
2. Who fell in love with her?
3. What famous English amateur football team is named after a winged horse?
4. Who lost a race but gained a husband by going after tempting golden apples?
5. How many great labours did Hercules have to perform?
6. Whose was 'the face that launched a thousand ships'?
7. What is meant by an 'Achilles heel', and how did the term come about?
8. What did his wife Penelope do while Odysseus was away?
9. How did Orpheus gain the attention of animals and trees?
10. What is a labyrinth?
11. Which god had winged feet or sandals and made the rainbow his track? Which is his day of the week?
12. Who turned everything he touched (including his food and his daughter) into gold?

ANSWERS

1. *Diana.*
2. *Endymion.*
3. *Pegasus.*
4. *Atalanta.*
5. *Twelve.*
6. *Helen of Troy's.*
7. *A weak spot (from the heel of Achilles, by which his mother held him when she dipped him in the river Styx to make him invulnerable).*
8. *She wove a garment but unpicked each day's work at night.*
9. *By playing on his lute.*
10. *A complicated maze of passages.*
11. *Mercury; our Wednesday (the French name is Mercredi).*
12. *Midas.*

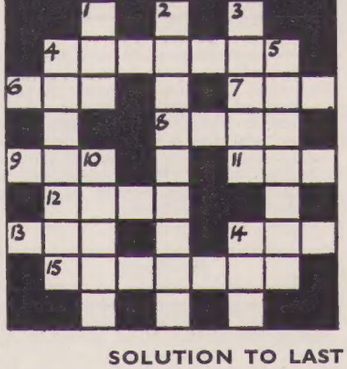
BRAIN ? BOX

1. I thought of a number and multiplied together the one above and the one below it. This gives 195. What is the number I first thought of? (Try to do this in your head.)
2. GROUP A: My bus was early yesterday, so I missed my train. Today it was late, so I missed my train again.
   GROUP B: My bus was early yesterday, so I caught my train. Today it was late, so I caught my train again.
   GROUP C: My bus was late yesterday, so I caught my train. Today it was early, so I missed my train.
   Which of these sets of arguments is the only satisfactory one?
3. Two Annes, three Catherines, and one Jane – can you say what is the bond of association, complete the names, and put them in chronological order?

ANSWERS

1. *14 (add one to the answer and you have the square of the number I first thought of).*
2. *Group A. (The implication is that as the bus was early, I missed the bus and consequently the train.) The second 'so' in Group B and the first 'so' in Group C make these sets of arguments unsatisfactory.*
3. *They are the six wives of Henry VIII: Catherine of Aragon, Anne Boleyn, Jane Seymour, Anne of Cleves, Catherine Howard, Catherine Parr.*

HIGH-SPEED CROSSWORD



Clues Across

4. Repayments (7).
6. Cobbett called London 'the Great ——' (3).
7. Northern sea-bird (3).
8. Dickens' lady's umbrella? (4).
9. Public service vehicle (3).
11. Man in search of information (3).
12. Dusky Othello was the '—— of Venice' (4).
13. Possessive adjective (3).
14. Three points at Rugby (3).
15. Rainlessness (7).

Clues Down

1. Domestic fowl (3).
2. Risky (9).
3. Sports sides (5).
4. Started again (7).
5. Hold up (7).
10. Expression of regret (5).
14. Definite article (3).

Solution next week.

SOLUTION TO LAST WEEK'S CROSSWORD

ACROSS: 1, Lady; 3, Able; 7, Marriages; Eminent; 11, Exudation; 12, Soho; 13, Eggs.

DOWN: 1, Lime; 2, Dartmouth; 4, Beginning; 5, Easy; 6, Linnean; 9, Bees; 10, Ends.

You write – thousands read!

Sick Humour

Nurse to patient in hospital: 'Wake up, Mr Brown. It's time to take your sleeping pills.'

P. Nichols (age 12),
The Rectory,
Middle Chinnock,
Nr Crewkerne, Somerset.

A Queen's Home

DEAR EDITOR—While passing through Jedburgh recently, I visited Queen Mary's House. This is situated a little way from the main Edinburgh to Newcastle road, and contains many interesting relics.

Mary, Queen of Scots, journeyed from here to visit Bothwell who lay wounded in Hermitage Castle, but on the return journey she slipped from her horse. Within a week she fell ill with pneumonia. As she lay unconscious in her little bedroom at Jedburgh, everyone thought she was dead. Someone opened the bedroom window 'to allow her spirit to rise to heaven', but the fresh air revived Mary and she recovered.

Later, before her execution at Fotheringay, Mary cried: 'Would that I had died at Jedburgh!'

Another interesting thing about the house is a staircase that spirals to the left. The house belonged to the Ker family for several centuries and they were a left-handed clan. The twist to the left allowed them to use their left hands freely to repel any intruders. It is thought that the term 'Kerhanded' has originated from this clan.

Richard Guest,
9 Violet Terrace,
Edinburgh 11.

Slick Snake

DEAR EDITOR—Why is a snake smart? Because you cannot pull its leg.

Denis Lefevre,
26 Ashley Road,
Aberdeen.

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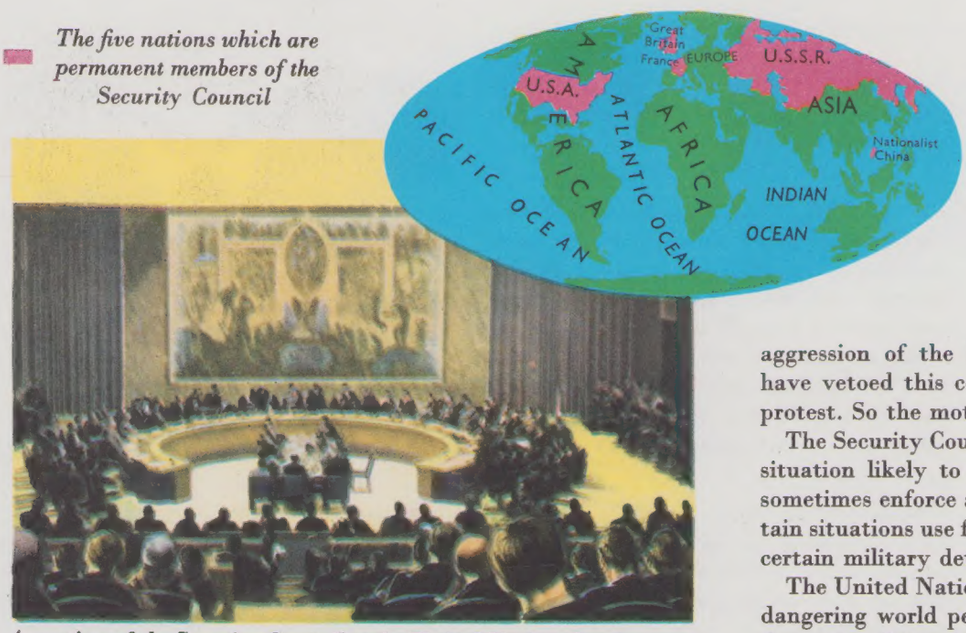
organisation are able and willing to carry out these obligations' New states are admitted to membership of the United Nations by the decision of the General Assembly following a recommendation by the Security Council. The budget of the United Nations for 1962 was over £25,000,000. Each member contributed a percentage of this cost, its contribution being assessed on the grounds of ability to pay. The United States contributes 32 per cent, the Soviet Union 15 per cent, Britain 7·85 per cent, France 5·94 per cent. Ninety-six nations pay less than one per cent, 36 of which are paying the minimum of 0·04 per cent.

Purpose

The purpose of the United Nations expressed in the words of its Charter is:

1. To maintain international peace and security, and to that end: to take effective collective measures for the prevention and removal of threats to the peace and for the suppression of acts of aggression or other breaches of the peace, and to bring about by peaceful means, and in conformity with the principles of justice and international law, adjustment or settlement of international disputes or situations which might lead to a breach of the peace: 2. To develop friendly relations among nations based on respect for the principle of equal rights and self-determination of peoples, and to take other appropriate measures to strengthen universal peace: 3. To achieve international co-operation in solving international problems of an economic, social, cultural, or humanitarian character, and in promoting and encouraging respect for human rights and for the fundamental freedom of all without distinction as to race, sex, language, or religion: and 4. To be a centre for harmonising the actions of nations in the attainment of these common ends.



The five nations which are permanent members of the Security Council

A meeting of the Security Council at the United Nations headquarters

The organisation

The six principal organs of the United Nations are: the General Assembly; the Security Council; the Economic and Social Council; the Trusteeship Council; the International Court of Justice; and the Secretariat.

The General Assembly

The General Assembly is the nearest the human race has approached to a world parliament. Delegates from each member nation sit in the Assembly.

Each state has only one vote, though five delegates can attend the meetings of the Assembly which are usually held once a year, always at the headquarters of the United Nations in New York. The General Assembly has the right to discuss and make recommendations on all matters within the scope of the United Nations Charter with one exception – when a matter is being dealt with by the Security Council. Only if the Security Council fails to take action on a matter concerning world peace, or if the Security Council specifically asks it to, can the Assembly make a recommendation for action if two-thirds of the members agree. The General Assembly is also finally responsible for approving the expenditure and work of the organisation.

The Security Council

A large assembly is not the best means for swift action. Thus the General Assembly delegates much of its power in matters of keeping the peace to the Security Council. The five permanent members of the Security Council are the United States, USSR, Great Britain, France, and China – in the case of China, however, the member represents not Communist China but the Nationalist government based on the island of Formosa. There are also six non-permanent members elected for a term of two years by the General Assembly. Any decision made by the Security Council, except on a matter of procedure, must have the agreement of all the permanent members and at least two of the non-permanent members. If, as sometimes happens, one of the permanent members votes against a course of action, and the Security Council therefore cannot act, it is then up to the General Assembly to take action. This rule came into force as a result of the Korean crisis, when the United Nations sent an armed force to combat the aggression of the North Koreans. The Soviet delegate would have vetoed this course of action – but he had 'walked out' in protest. So the motion was passed in his absence.

The Security Council has the right to investigate any dispute or situation likely to endanger world peace, and recommend and sometimes enforce a settlement. The Security Council may in certain situations use force to gain its ends, and members must make certain military detachments available to the Security Council.

The United Nations can intervene in any situation which is endangering world peace. But it can only intervene in the purely domestic affairs of a country when specifically invited to do so.

No. 136 Volume 12

Knowledge

Printed in Great Britain by Purnell & Sons Limited
Paulton, Nr. Bristol

Published by arrangement with
Fratelli Fabbri Editori
Milan

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Economic and Social Council

The Economic and Social Council might be described as a world welfare organisation. Its object is to make the world a happier and more prosperous place. It is composed of 18 member states, six of which are elected each year by the General Assembly. Naturally the Council itself can only supervise the vast work of world welfare. It therefore works through commissions or special United Nations or associated agencies.

Special commissions have been set up to study the economic problems of Europe, Asia and the Far East, Latin America, and Africa.

There are also special commissions studying such subjects as human rights, the status of women, population, and narcotic drugs. The Council is also actively concerned with the Expanded Programme of Technical Assistance in which technical advice is given to underdeveloped countries, and with the United Nations Special Fund, which organises surveys as a basis for economic development.

Agencies with which the Economic and Social Council work are:

IAEA (International Atomic Energy Agency)

ILO (International Labour Organisation)

FAO (Food and Agriculture Organisation of the United Nations)

UNESCO (United Nations Educational, Scientific and Cultural Organisation)

WHO (World Health Organisation)

The flag of the United Nations: an olive branch (the symbol of peace) encircling the world

WORLD BANK (International Bank for Reconstruction and Development)

IDA (International Development Agency)

IFC (International Finance Corporation)

FUND (International Monetary Fund)

ICAO (International Civil Aviation Organisation)

UPU (Universal Postal Union)

ITU (International Telecommunication Union)

WMO (World Meteorological Organisation)

IMCO (Inter-Governmental Maritime Consultative Organisation)

GATT (General Agreement on Tariffs and Trade)

Also working under the Economic and Social Council are three bodies set up for special assignments. These are:

UNICEF (The United Nations International Children's Emergency Fund)

UNHCR (United Nations High Commission for Refugees)

UNRWA (United Nations Relief and Works Agency for Palestine Refugees in the Near East)

Trusteeship Council

The Trusteeship Council was set up to look after countries for whom, for one reason or another, complete self-government was not practicable.

The International Court of Justice

The International Court of Justice decides inter-state disputes in accordance with international law. The General Assembly and Security Council may also request the court to give an advisory opinion. The seat of the Court is at the Hague, but it may sit anywhere. It has 15 judges – decisions are by a majority vote.

The Secretariat

The Secretariat is an international civil service which carries out the decisions of the United Nations, and looks after the smooth day-to-day working of the organisation. At the head is the Secretary General. The present Secretary General is U Thant of Burma who succeeded Dag Hammarskjold of Sweden after he had been killed in an air crash in 1961.

U Thant, the present Secretary General

Dag Hammarskjold: the Secretary General who was killed in an air crash in 1961

The Secretary General is more than just an official; he is an international peacemaker and welfare officer who is at the service of the nations of the world. He is elected by the General Assembly on the recommendation of the Security Council.